SERVICE MANUAL

CR8.90 / CR9.90 / CX8.90
Tier 4A

CR8.90 PIN 1946 and above, CR9.90 PIN 1947 and above,
CX8.90 PIN 1962 and above

CR10.90 / CX8.80
Tier 4B (final)

CR10.90 PIN 1947 and above, CX8.80 PIN 1957 and above

Combine

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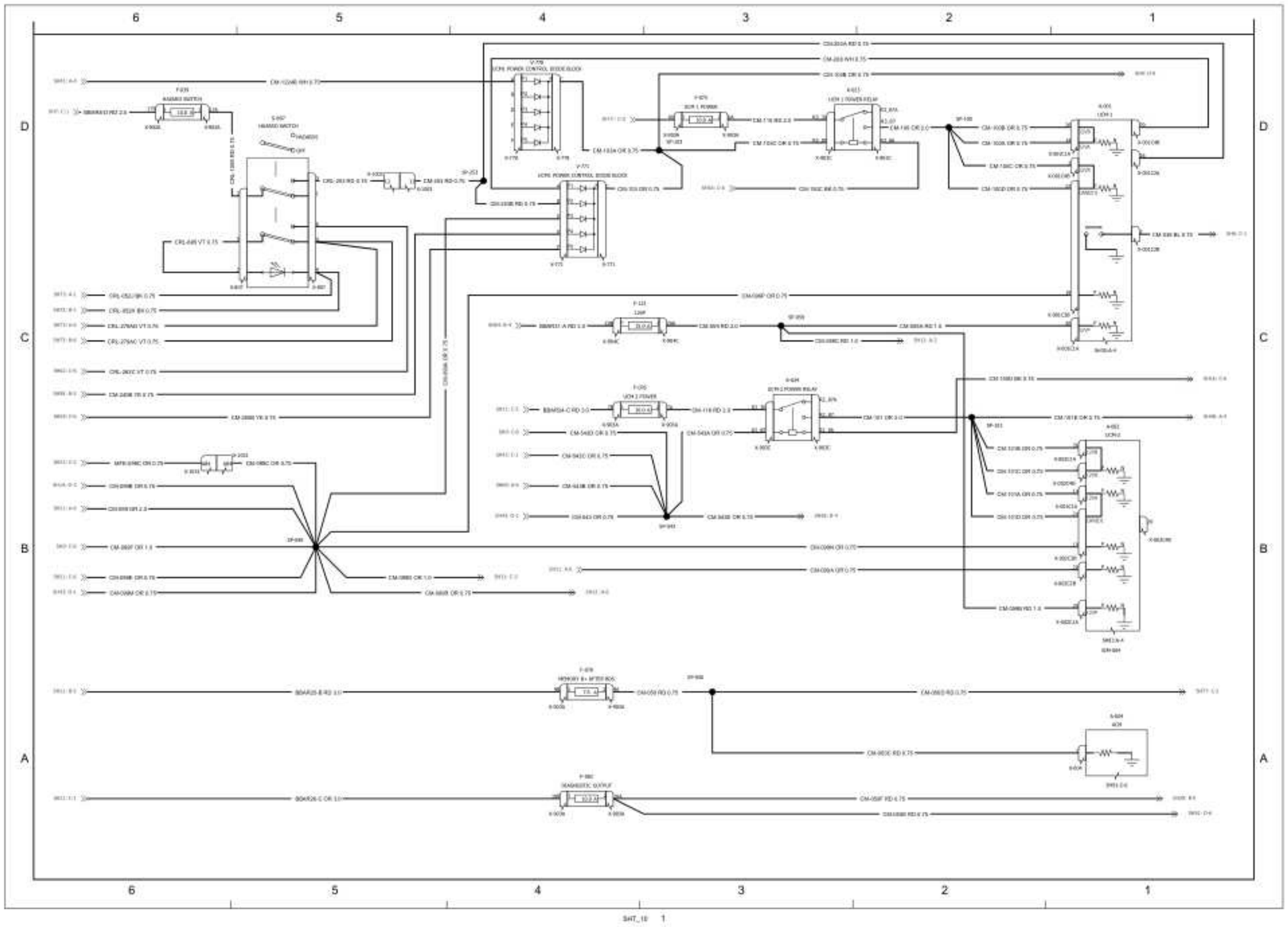
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E0125-03- Jammer Valve - Shorted to high source

CR10.90 TIER 4B [1947 -]	NA
CR8.90 TIER4A [1946 -]	NA
CR9.90 TIER 4A [1947 -]	NA
CX8.80	NA
CX8.90	NA

Control Module : UCM1

Context:
The Universal Control Module 1 (UCM1) **A-001** monitors the operation of the jammer valve **Y-443**.

Cause:
UCM1 **A-001** is sensing a short to high condition in the jammer valve **Y-443** signal circuit.

Possible failure modes:

1. Faulty jammer valve **Y-443**.
2. Faulty electrical wiring shorted to voltage source.
3. Faulty UCM1 **A-001**.

Solution:

1. Verify that the fault is present and active.

   Use the display monitor diagnostic capability to view parameter status to check the voltage level.

   For additional information about the monitor diagnostic capability, see **Electrical system - Dynamic description Theory of operation – Display monitor diagnostic screens (55.000)**.

   A. If the voltage reading is high, continue to Step **2**.

   B. If there is voltage, the fault may intermittent and not currently active. Continue to Step **6**.

2. Verify that the jammer valve **Y-443** functions properly.

   Disconnect the jammer valve **Y-443** from the Left Main Frame (LMF) harness at connector **X-443**.

   Check the display monitor for other fault codes.

   A. If fault code **E0125-03 - Jammer Valve - Shorted to high source** is still present, continue to Step **3**.

   B. If fault code **E0125-05 - Jammer Valve - Line disconnected** is present, the circuit wiring functions properly. However, the jammer valve **Y-443** has failed internally. Replace the jammer valve **Y-443**.

3. Check for a short to high condition.

   Place the ignition switch in the ON position.

   Use a multimeter to check for voltage:

From	To	Result
Left Main Frame (LMF) harness side of connector **X-443 (Female) pin 1**, wire LMF-749 (WH)	Chassis ground	Should be approximately **12.0 V**

   A. If the voltage reading is greater than **12.0 V**, continue to Step **5**.

   B. If there is approximately **12.0 V**, continue to Step **4**.

4. Check for an open condition.

   Place the ignition switch in the OFF position.

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From	To	Result
Suspension Tracks (ST) harness side of connector **X-232 (Female) pin C**, wire STT-341MC (YE)	Cab main (CM) harness at connector **X-003C2B (Female) pin 31**, wire CM-341 (YE)	Should be continuity

A. If there is no continuity, the UCM3 **A-003** has failed internally. Load the appropriate module software. If the fault recurs, replace the UCM3 **A-003**.

B. If there is continuity, there is a faulty wire between connector **X-003C2B (Female) pin 31**, wire CM-341 (YE) and connector **X-232 (Female) pin C**, wire STT-341MC (YE). Locate the faulty wiring. Repair the faulty wiring.

4. Visually inspect the relevant harnesses and connectors for damage, bent or dislocated pins, corroded terminals, or broken wires. Verify that the connectors are fully installed. Flex the harnesses involved to reveal intermittent breaks or shorts in the wiring concerned. Operate the machine while you monitor the display.

   A. If you find damage or the display indicates other than normal display readings, then repair the damage discovered during the inspection or locate and repair the other than normal display condition and verify that the error has been resolved.

   B. If you do not find damage and the display indicates only normal readings, then erase the fault code and continue operation.

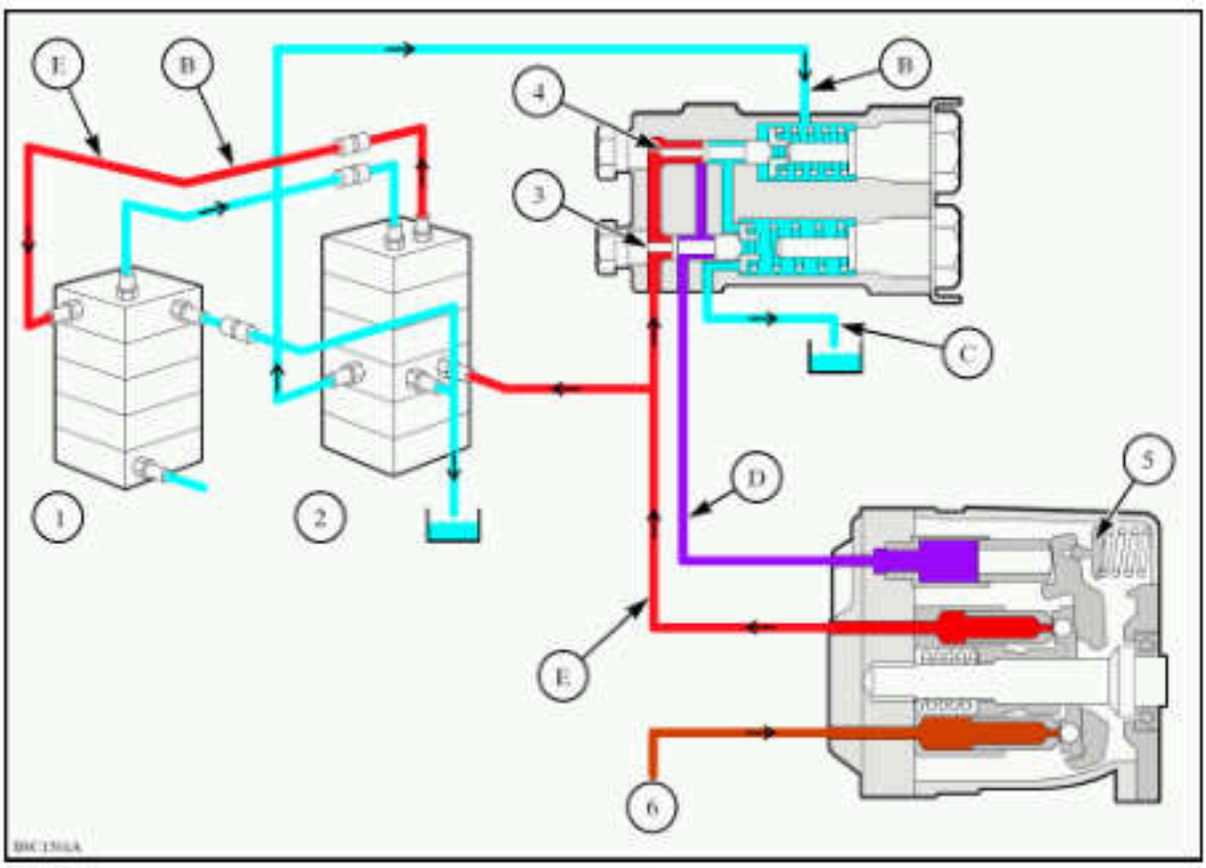
Wiring harnesses - Electrical schematic sheet 50 SH50 - SUSPENDED TRACKS,DISPLACEMENT SENSORS (55.100.DP-C.20.E.50)

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Low Pressure Standby

With Reference to image **2**

Low pressure standby is the system pressure **21 - 24 bar** (**305 - 348 psi**) maintained by the hydraulic pump when high pressure hydraulic circuits are not being operated.
During engine start up, standby pressure has not been generated and both the flow and pressure compensating valves are held to the left by spring pressure.
While the spools are held to the left oil pressure generated by the pump cannot be applied to the swash plate servo piston. The swash plate consequently remains in the maximum flow position until the pump has developed sufficient flow to produce pressure at low pressure standby.
As pump output pressure increases to **21 - 24 bar** (**305 - 348 psi**), this pressure is sensed in gallery **(E)**, and applied to the flow compensating spool. The spool gradually moves against the spring allowing oil flow from gallery **(E)**, to gallery **(D)**.
The controlled pressure rise in gallery **(D)**, operates the swash plate servo piston, changing the angle of the swash plate in relation to the pumping head. The change in angle reduces the operating stroke of the pistons and output of the pump.
As pump output decreases and the pressure in gallery **(D)**, reduces to less than **24 bar** (**348 psi**), the flow compensating valve gradually moves under spring pressure to the left bleeding gallery **(D)**, to sump through gallery **(C)**. This reduces the control pressure applied to the servo piston, allowing the servo piston to retract at a controlled rate under pressure from the swash plate return spring and re-adjust the angle of the swash plate to increase pump output.
This control process continues maintaining pump output pressure at **21 - 24 bar** (**305 - 348 psi**) (low pressure standby) until a high pressure circuit is operated and pump system pressure needs to be increased to operate the service.



BSC1301A 2

Standby Pressure @ **21 - 24 bar** (**305 - 348 psi**)

Control Pressure

Return to Reservoir

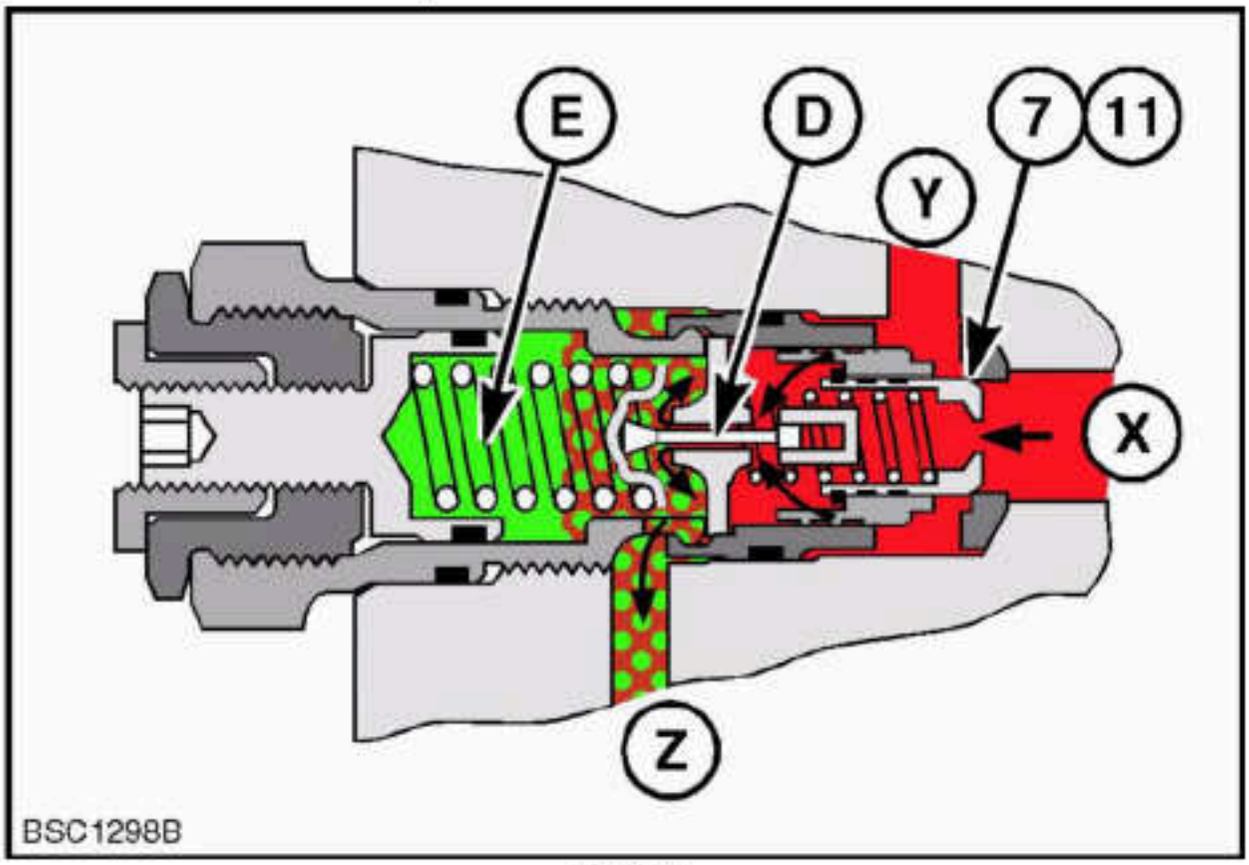
Charge Pressure

1 Straw elevator stack valve (In Neutral)
2 Main frame stack valve (in neutral)
3 Pressure Compensating Valve
4 Flow Compensating Valve
5 Swash Plate
6 Return from Hydrostatic motors

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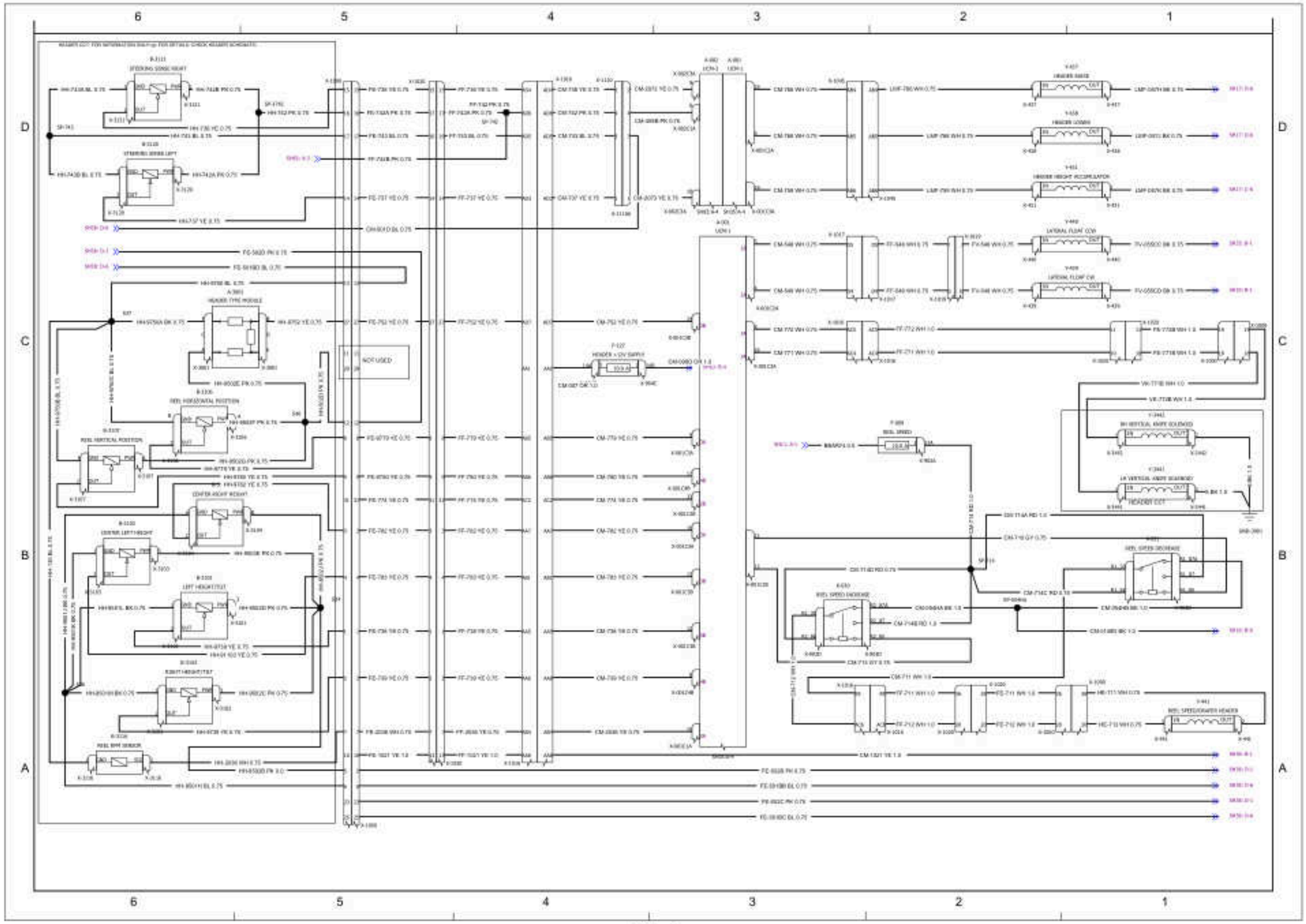
Pressure limiter 8b - 9b

When high pressure exceeds **420 bar** (**6090 psi**), poppet **(D)**, will move to the left, compressing spring **(E)**, due to the pressure behind the poppet pressurized oil will flow from port **(X)**, into port **(Z)**, to the main servo cylinder. The main servo cylinder will then move the swash plate of the hydrostatic pump towards neutral when the transmission is in drive mode and towards maximum displacement when the transmission is in brake mode.



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